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7590 Martin D. Moynihan PRTSI, Inc. P. O. Box 16446 Arlington, VA 22215			EXAMINER RAMPURIA, SATISH	
			ART UNIT 2191	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/715,532	Applicant(s) NEHAB, SMADAR	
	Examiner Satish S. Rampuria	Art Unit 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the application filed on November 19, 2003.
2. Claims 1-52 are pending.

Priority

3. Acknowledgment is made of applicant's claiming the benefits of the earlier filed **US Provisional Application** filed on November 20, 2002.

Oath/Declaration

4. The Office acknowledges receipt of a properly signed oath/declaration filed November 19, 2003.

Specification

5. The use of the trademark "Java" has been noted in this application (i.e., page 8). It should be appropriate or proper term (i.e., Java™) (see MPEP 608.01(v)) used, wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.
6. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Drawings

7. The drawings were received on November 19, 2003. These drawings are not acceptable by the examiner.

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

8. Claim 2 and 6 objected to because of the following informalities: Regarding claim 2, the period (.) is missing at the end of the claim. Regarding claim 6, the word "The claim" should be "The system".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the **second paragraph** of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitations "said rules" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Clarification and/or correction are required.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 1-11 and 21-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

13. Claims 1-11 and 21-24 are non-statutory because the language of the claim raises a question as to whether the claim is directed merely to an abstract idea which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claim recites system for testing the implementation of a software system, representing functional descriptive material without a hardware element (i.e., a memory or a processor), program code per se are not tangibly embodied. Claims 2-11 and 22-24 are directly or indirectly dependent on claims 1 and 21, respectively, and further support system for testing the implementation of a software system,

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representing functional descriptive material without a hardware element, program code per se are not tangibly embodied, thus amounts to only abstract idea and are nonstatutory.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1-5, 8, 12-16, 18, 25-28, 29, 32-52 are rejected under 35

U.S.C. 102(e) as being anticipated by US Publication No. 2003/0204784 to Jorapur (hereinafter, Jorapur).

Per claim 1:

Jorapur discloses:

A system for testing the implementation of a software system for performing a required business process comprising:

(a) a business process specification for specifying the business process in a BPML compliant language (paragraph [0029] "...adding modules... and business methods... to the template...methods may be implement the logic, operations or rules of the an application...");

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(b) an analysis module for generating a plurality of possible valid test scenarios (paragraph [0009] "one or more other testes scenarios may be generated from the original tests...");

(c) a directed random engine or a constraint solving system for randomly generating tests according to said test scenarios (paragraph [0009] "One or more of the test used during testing may be generated automatically, either before testing or dynamically during testing..."), such that said tests are limited according to at least one of a business priority and a testing priority (paragraph [0009] "A test generator may receive as input configuration settings and/or tests for an application and generate test scenarios based on the configuration settings or tests"); and (d) a simulator for determining expected results for said generated tests (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution...").

Per claim 2:

The rejection of claim 1 is incorporated and further, Jorapur discloses: wherein said simulator determines said expected results according to said business process specification (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully...").

Per claim 3:

The rejection of claim 1 is incorporated and further, Jorapur discloses:

wherein the software system is determined according to a software specification, said software specification determining inputs for said generating said tests by said directed random engine or said constraint solving system, said inputs also being determined according to said business process specification (paragraph [009] "One or more other tests scenarios may be generated from the original tests, for example by introducing variations in an original test, such as by varying the configuration of the operating environment, input values used, configuration settings, data types used, communication settings, or other elements or combination of elements of the test.").

Per claim 4:

The rejection of claim 1 is incorporated and further, Jorapur discloses:

a modeling module for receiving said rules from said business process specification and applying said results from executing said generated tests (paragraph [0011] "Testing may span different application executions, with variations in the test settings such as executing the application with different configurations, input values, or other parameters that may result in different execution of the application to be tested").

Per claim 5:

The rejection of claim 4 is incorporated and further, Jorapur discloses:

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wherein said modeling module models behavior of the business process and generates output representing predicted results for said simulator (paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... ").

Per claim 8:

The rejection of claim 1 is incorporated and further, Jorapur discloses:
further comprising connector hub technology for translating said plurality of tests into concrete calls to the software system (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...").

Per claim 12:

Jorapur discloses:

A method for testing the implementation of a software system for performing a required business process, comprising:

providing a specification for describing the business process (paragraph [0029]

"...adding modules... and business methods... to the template...methods may be implement the logic, operations or rules of the an application...");

analyzing said specification to form an analysis of the business process (paragraph [0009] "one or more other testes scenarios may be generated from the original tests...");

and generating at least one test for testing the software system for performing the business process according to said analysis (paragraph [0009] "One or more of the

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teste used during testing may be generated automatically, either before testing or dynamically during testing...").

Per claim 13:

The rejection of claim 12 is incorporated and further, Jorapur discloses:

wherein said specification comprises at least one general requirement for performing the business process and at least one rule for being fulfilled by the software system (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... ").

Per claim 14:

The rejection of claim 12 is incorporated and further, Jorapur discloses:

performing said at least one test to obtain a result (paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... "); and
analyzing said result to determine a performance of the software system (paragraph [0038] "Automated testing may be performed by a dedicated application configured to use the test parameters generated by the automated test generator").

Per claim 15:

The rejection of claim 14 is incorporated and further, Jorapur discloses:
wherein analyzing said result further comprises determining coverage provided by said
at least one test (paragraph [0051] "the test generator may generate tests where
parameters other than interface type may be varied for a single module test, so as to
multiply the number of tests cases and achieve broad test area coverage").

Per claim 16:

The rejection of claim 15 is incorporated and further, Jorapur discloses:
performing an initial generation of at least one test (paragraph [0009] "one or more other
testes scenarios may be generated from the original tests...");
performing said at least one test to obtain a result (paragraph [0012] "A report indicating
the results of the tests may be generated... results may reflect some behavior of the
application during execution... ");
analyzing said result to determine coverage of said at least one test(paragraph [0051]
"the test generator may generate tests where parameters other than interface type may
be varied for a single module test, so as to multiply the number of tests cases and
achieve broad test area coverage"); and
generating a plurality of tests according to said coverage (paragraph [0051] "the test
generator may generate tests where parameters other than interface type may be
varied for a single module test, so as to multiply the number of tests cases and achieve

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broad test area coverage”).

Per claim 18:

The rejection of claim 12 is incorporated and further, Jorapur discloses:

wherein said generating is performed at least partially according to a directed random generation engine (paragraph [0009] “One or more of the test used during testing may be generated automatically, either before testing or dynamically during testing...”).

Per claim 25

Jorapur discloses:

A method for verification of a software system for performing a business process comprising:

modeling the business process to form a model (paragraph [0029] “...adding modules... and business methods... to the template...methods may be implement the logic, operations or rules of the an application...”);

analyzing the model according to a plurality of actions occurring in the model (paragraph [0009] “one or more other testes scenarios may be generated from the original tests...”);

developing at least one test strategy according to said plurality of actions (paragraph [0009] “one or more other testes scenarios may be generated from the original tests...”);

and generating at least one test according to said at least one test strategy (paragraph [0009] “One or more of the teste used during testing may be generated automatically,

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either before testing or dynamically during testing...").

Per claim 26:

The rejection of claim 25 is incorporated and further, Jorapur discloses:

determining priority with respect to said test; controlling and optimizing for corner cases and risk points (paragraph [0009] "A test generator may receive as input configuration settings and/or tests for an application and generate test scenarios based on the configuration settings or tests").

Per claim 27:

The rejection of claim 26 is incorporated and further, Jorapur discloses:

controlling test runs; and determining an analysis, comparison and coverage of test results from said test runs (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution..." and (paragraph [0051] "the test generator may generate tests where parameters other than interface type may be varied for a single module test, so as to multiply the number of tests cases and achieve broad test area coverage"))).

Per claim 28:

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The rejection of claim 26 is incorporated and further, Jorapur discloses:

generating scripts (paragraph [0027] "The template generator 202 may be a script that is configured to generate the application template automatically"); and connecting to a connector for operating the test on the software system (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...").

Per claim 29:

Jorapur discloses:

providing a specification for describing the process and the Web services (paragraph [0027] "templates may be provided for client application code, such as for Web Clients");

analyzing said specification to form an analysis of the process and the Web services (paragraph [0009] "one or more other testes scenarios may be generated from the original tests..."); and

generating at least one test for testing the software system for performing the process according to said analysis (paragraph [0027] "a template may be provided for an EJB configured to provide generic database access for a variety of other modules and another template may be provided for an EJB configured to process results from a particular web page").

Per claim 32:

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Jorapur discloses:

A method for testing software for performing a business process, comprising:

analyzing the business process according to a plurality of general requirements and rules for the business process (paragraph [0029] "...adding modules... and business methods... to the template... methods may be implement the logic, operations or rules of the an application...");

analyzing a specific implementation of the business process as software (paragraph [0009] "one or more other testes scenarios may be generated from the original tests...");

generating at least one abstract test for examining a behavior of the software as said specific implementation of the business process (paragraph [0009] "One or more of the test used during testing may be generated automatically, either before testing or dynamically during testing...").

Per claim 33:

The rejection of claim 32 is incorporated and further, Jorapur discloses:

generating at least one detailed test description according to a plurality of constraints, said constraints being determined according to operating parameters of the software (paragraph [0009] "A test generator may receive as input configuration settings and/or tests for an application and generate test scenarios based on the configuration settings or tests"); and

generating at least one script according to said at least one detailed test description (paragraph [0027] "The template generator 202 may be a script that is configured to

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generate the application template automatically").

Per claim 34:

The rejection of claim 33 is incorporated and further, Jorapur discloses:

executing said at least one script (paragraph [0027] "The template generator 202 may be a script that is configured to generate the application template automatically"); analyzing results of said executing to assess performance of the software (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... ").

Per claim 35:

The rejection of claim 32 is incorporated and further, Jorapur discloses:

wherein said analyzing said specific implementation of the business process comprises determining a software specification for specifying a plurality of functions for the software (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... ").

Per claim 36:

The rejection of claim 35 is incorporated and further, Jorapur discloses:
assessing conformance of the software according to said software specification
(paragraph [0011] "provide services to the software, simulate or provide resources,
and/or may provide stability to that errors in the software have a limited impact...that the
testes/software terminate gracefully..." and paragraph [0012] "A report indicating the
results of the tests may be generated... results may reflect some behavior of the
application during execution... ").

Per claim 37:

The rejection of claim 32 is incorporated and further, Jorapur discloses:
wherein said analyzing the business process further comprises: determining a business
process description (paragraph [0011] "provide services to the software, simulate or
provide resources, and/or may provide stability to that errors in the software have a
limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A
report indicating the results of the tests may be generated... results may reflect some
behavior of the application during execution... ").

Per claim 38:

The rejection of claim 37 is incorporated and further, Jorapur discloses:

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wherein said business process description is provided in a formal language (paragraph [0021] "automatic test cases may be generated for Java 2 Enterprise Edition (J2EE) software. Test cases for J2EE may cover the Enterprise Java Bean (EJB) specification").

Per claim 39:

The rejection of claim 38 is incorporated and further, Jorapur discloses: wherein said formal language is selected from the group consisting of UML (unified modeling language) activity diagrams, UML sequence diagrams, UML state charts, BPEL (business process execution language) standard language, or BPML (business process modeling language) standard language (paragraph [0021] "automatic test cases may be generated for Java 2 Enterprise Edition (J2EE) software. Test cases for J2EE may cover the Enterprise Java Bean (EJB) specification").

Per claim 40:

The rejection of claim 38 is incorporated and further, Jorapur discloses: wherein analyzing the business process further comprises parsing said business process description (paragraph [0029] "Business methods may implement the logic, operations, or rules of an application").

Per claim 41:

The rejection of claim 37 is incorporated and further, Jorapur discloses:

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analyzing each transition of the business process (paragraph [0029] "Business methods may implement the logic, operations, or rules of an application...They may be added to modules or the application to provide work performing functionality").

Per claim 42:

The rejection of claim 41 is incorporated and further, Jorapur discloses:

wherein said transition comprises a starting state, a target state, and a condition or event that causes a change from said starting state to said target state (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 43:

The rejection of claim 41 is incorporated and further, Jorapur discloses:

wherein at least one test primitive for at least partially determining at least one abstract test is determined from at least one transition (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 44:

The rejection of claim 43 is incorporated and further, Jorapur discloses:

wherein a plurality of test primitives is determined for constructing a tree for determining said at least one abstract test (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 45:

The rejection of claim 43 is incorporated and further, Jorapur discloses:
wherein said at least one detailed test description is at least partially determined from at least one input and at least one event for said at least one transition (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 46:

The rejection of claim 44 is incorporated and further, Jorapur discloses:
wherein a plurality of tests are generated from said at least one detailed test description according to a directed random generator (paragraph [0009] "One or more of the test used during testing may be generated automatically, either before testing or dynamically during testing...").

Per claim 47:

The rejection of claim 46 is incorporated and further, Jorapur discloses:
determining at least potential functional coverage of said plurality of tests by comparison to a set of all possible tests (paragraph [0051] "the test generator may generate tests where parameters other than interface type may be varied for a single module test, so as to multiply the number of tests cases and achieve broad test area coverage").

Per claim 48:

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The rejection of claim 32 is incorporated and further, Jorapur discloses:
translating said plurality of tests into concrete calls to the tested software by using a connector hub technology (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...").

Per claim 49:

The rejection of claim 48 is incorporated and further, Jorapur discloses:
generating a plurality of inputs according to the business process description (paragraph [0009] "one or more other testes scenarios may be generated from the original tests..."); and
executing said plurality of tests (paragraph [0011] "Executing a test may involve executing the application within a test framework according to one or more test configurations and detecting errors occurring during the application execution...").

Per claim 50:

The rejection of claim 49 is incorporated and further, Jorapur discloses:
analyzing results from said executing said plurality of tests for comparing with a plurality of expected results, said expected results being determined according to said business process description (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully...").

Per claim 51:

The rejection of claim 32 is incorporated and further, Jorapur discloses:
wherein the business process comprises a process selected from group consisting of
billing, marketing and distribution, and personnel management (paragraph [0029]
"Business methods may implement the logic, operations, or rules of an application".
Business logic could be one of billing, marketing and distribution, and personal
management process. Emphasis added).

Per claim 52:

The rejection of claim 32 is incorporated and further, Jorapur discloses:
wherein said analyzing said specific implementation of the business process comprises
generating a finite state machine description of said plurality of general requirements
and rules (paragraph [0029] "...adding modules... and business methods... to the
template...methods may be implement the logic, operations or rules of the an
application...").

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art
are such that the subject matter as a whole would have been obvious at the time the invention was made to a

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person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 6, 7, 9-11, 17, 21-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Jorapur in view of US Patent No. 6,349,393 to Cox (hereinafter, Cox).

Per claim 6:

The rejection of claim 5 is incorporated and further, Jorapur does not explicitly disclose a validation module for comparing said expected results to said results from executing said generated tests.

However, Cox discloses in an analogous computer system a validation module for comparing said expected results to said results from executing said generated tests (Cox col. 37, lines 58-64 "Block 1704 illustrates the comparison of the query results for the model level for the specified index and the process then passes to block 1705...no query results exist, the process passes to block 1706 and terminates...a query result does exist, the process passes to block 1707...a determination of whether the query results are as specified within the model and if so, the process passes to block 1709").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of a validation module for comparing said expected results to said results from executing said generated tests as taught by Cox into the method of automatically generating test case as taught by Jorapur. The modification would be obvious because of one of ordinary skill in the art would be motivated to have a validation module for comparing test results to

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provide an improved software testing system as suggested by Cox (col. 2, lines 21-45).

Per claim 7:

The rejection of claim 6 is incorporated and further, Jorapur discloses:
a coverage system for calculating coverage provided by said generated tests
(paragraph [0051] "the test generator may generate tests where parameters other than interface type may be varied for a single module test, so as to multiply the number of tests cases and achieve broad test area coverage").

Per claim 9:

The rejection of claim 7 is incorporated and further, Jorapur discloses:
wherein said analysis module analyzes each transition of the business process according to said business process specification (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...attributes may be specified in a configuration file...").

Per claim 10:

The rejection of claim 9 is incorporated and further, Jorapur discloses:
wherein said transition comprises a starting state, a target state, and a condition or event that causes a change from said starting state to said target state (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 11:

The rejection of claim 10 is incorporated and further, Jorapur discloses:
wherein at least one test primitive is determined from at least one transition (See FIG. 4, elements Deploy, Execute, Undeploy and related discussion).

Per claim 17:

The rejection of claim 16 is incorporated and further, Jorapur discloses:
determining an expected result from the software system according to said specification (paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution...").

Jorapur does not explicitly disclose comparing said expected result with an actual result to determine said performance of the software system.

However, Cox discloses in an analogous computer system comparing said expected result with an actual result to determine said performance of the software system (Cox col. 37, lines 58-64 "Block 1704 illustrates the comparison of the query results for the model level for the specified index and the process then passes to block 1705...no query results exist, the process passes to block 1706 and terminates...a query result does exist, the process passes to block 1707...a determination of whether the query results are as specified within the model and if so, the process passes to block 1709").

Per claim 21:

Jorapur discloses:

A system for automatic verification of the implementation of a software system for performing a required business process, the business process being described according to a specification, the system comprising:

(a) a generator for automatically generating tests from at least one rule specified in the specification of the business process (paragraph [0029] "...adding modules... and business methods... to the template...methods may be implement the logic, operations or rules of the an application...");

(b) a simulator for generating at least one expected result of said tests from the specification (paragraph [0011] "provide services to the software, simulate or provide resources, and/or may provide stability to that errors in the software have a limited impact...that the testes/software terminate gracefully..." and paragraph [0012] "A report indicating the results of the tests may be generated... results may reflect some behavior of the application during execution... ");

(c) a connector for receiving an actual result of said tests from the software system being tested (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...").

Jorapur does not explicitly disclose (d) a validator for comparing said actual result with said at least one expected result.

However, Cox discloses in an analogous computer system a validator for comparing said actual result with said at least one expected result (Cox col. 37, lines 58-64 "Block 1704 illustrates the comparison of the query results for the model level for the specified index and the process then passes to block 1705...no query results exist, the process passes to block 1706 and terminates...a query result does exist, the process passes to block 1707...a determination of whether the query results are as specified within the model and if so, the process passes to block 1709").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of a validator for comparing said actual result with said at least one expected result as taught by Cox into the method of automatically generating test case as taught by Jorapur. The modification would be obvious because of one of ordinary skill in the art would be motivated to have a validation module for comparing test results to provide an improved software testing system as suggested by Cox (col. 2, lines 21-45).

Per claim 22:

The rejection of claim 21 is incorporated and further, Jorapur discloses:

(e) a data entry system for entering said at least one specification of at least one process (paragraph [0011] "Testing may span different application executions, with variations in the test settings such as executing the application with different configurations, input values, or other parameters that may result in different execution of the application to be tested").

Per claim 23:

The rejection of claim 21 is incorporated and further, Jorapur discloses:
wherein said connector receives said actual result of said tests from a simulation of said software system (paragraph [0052] "test generator...converting then in test cases to some other transaction or security setting in deferent tests...").

Per claim 24:

The rejection of claim 21 is incorporated and further, Jorapur discloses:
wherein said generator comprises a directed random generation engine (paragraph [0009] "One or more of the test used during testing may be generated automatically, either before testing or dynamically during testing...").

18. Claims 19-20, 30, and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Jorapur in view of US Patent No. 7,099,887 to Hoth et al. (hereinafter, Hoth).

Per claim 19:

The rejection of claim 12 is incorporated and further, Jorapur does not explicitly disclose wherein the software system implements a plurality of business processes as a business application.

However, Hoth discloses in an analogous computer system wherein the software system implements a plurality of business processes as a business application

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(col. 15, lines 24-44 "...complex business problems...relating to enterprise resource planning (ERP)...where many applications...across multiple...linked together").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of wherein the software system implements a plurality of business processes as a business application as taught by Hoth into the method of automatically generating test case as taught by Jorapur. The modification would be obvious because of one of ordinary skill in the art would be motivated to have a software system implements a plurality of business processes as a business application to provide implementing one to many relationship in database as suggested by Hoth (col. 1, line 55 to col. 2, line 12).

Per claim 20:

The rejection of claim 19 is incorporated and further, Jorapur does not explicitly discloses wherein said business application is selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management.

However, Hoth discloses in an analogous computer system wherein said business application is selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management (col. 15, lines 24-44 "...complex business problems...relating to enterprise resource planning (ERP)...where many applications...across multiple...linked together...deployment of ERP is

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performed...each part of the ERP which is deployed, separate tests are run across the world").

The feature of wherein the Web services perform, integrate with or connect to, a business application selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management would be obvious for the reasons set forth in the rejection of claim 19.

Per claim 30:

The rejection of claim 29 is incorporated and further, Jorapur does not explicitly disclose wherein the Web services perform, integrate with or connect to, a business application selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management.

However, Hoth discloses in an analogous computer system wherein the Web services perform, integrate with or connect to, a business application selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management (col. 15, lines 24-44 "...complex business problems...relating to enterprise resource planning (ERP)...where many applications...across multiple...linked together...deployment of ERP is performed...each part of the ERP which is deployed, separate tests are run across the world").

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The feature of wherein the Web services perform, integrate with or connect to, a business application selected from the group consisting of billing, Enterprise Resource Planning (ERP), Customer Requirements Management (CRM), Supply Chain Management (SCM), Human Resource management would be obvious for the reasons set forth in the rejection of claim 20.

Per claim 31:

The rejection of claim 30 is incorporated and further, Jorapur discloses: wherein said business application is described in a formal language, selected from the group consisting of UML (unified modeling language) activity diagrams, UML sequence diagrams or UML state charts, BPEL (business process execution language) standard language, BPML (business process modeling language) standard language, or any other equivalent language (paragraph [0021] "automatic test cases may be generated for Java 2 Enterprise Edition (J2EE) software. Test cases for J2EE may cover the Enterprise Java Bean (EJB) specification").

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Satish S. Rampuria** whose telephone number is **(571) 272-3732**. The examiner can normally be reached on **8:30 am to 5:00 pm**

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Monday to Friday except every other Friday and federal holidays. Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wei Y. Zhen** can be reached on **(571) 272-3708**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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